tation boundary should approximate in considerable measure the same general pattern as *four* low temperature phenomena.

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ADDITIONS TO AND SUBTRACTIONS FROM THE FLORA OF VIRGINIA

M. L. Fernald

(*Continued from page 159*)

*Gentiana Catesbaei Walt., var. **nummulariaefolia,** var. nov. (tab. 1078, fig. 3 et 4), a var. typica recedit folliis elliptico-ovalibus utrinque obtusis vel subrotundis 1–1.8 cm. longis 6–12 mm. latis membranaceis; calycis lobis late oblanceolatis ad 4.5 mm. latis.—Greensville County, Virginia: sphagnous bog about 1 mile northwest of Dahlia, October 12, 1938, *Fernald & Long*, no. 9618 (type in Herb. Gray.).

Gentiana Catesbaei, var. *nummulariaefolia* has for several years stood apart in the herbarium from all other material of the species and it seems very definite. Typical *G. Catesbaei* (plates 1078, figs. 1 and 2, and 1079), frequent in southeastern Virginia, has firm narrowly lanceolate to oblong-ovate acute or subacute leaves mostly 3–7 cm. long, though in the most extreme dwarfs down to 1.5 cm. but acutish; and its calyx-lobes are linear or narrowly lanceolate. Var. *nummulariaefolia*, on the other hand, has small membranaceous blunt or round-tipped elliptic-oval leaves only 1–1.8 cm. long, and its dilated calyx-lobes are broadly oblanceolate.

As I pointed out in Rhodora, xli. 555 (1939), Walter had two species of *Gentiana* with campanulate-ventricose corollas. What he took for *G. Saponaria* L. was described "corollis viridescentibus, foliis ovatis trinerviis" and (as shown by Walter's

material) was the misnamed greenish-flowered *G. villosa* L. Since *G. villosa*, as shown by its type, is strictly glabrous, Walter, quite naturally, did not so identify his greenish-flowered plant. Walter's *G. Catesbaei* was defined "corollis extus caeruleis, foliis lanceolatis remotis". The material in Walter's Herbarium shows, besides a summit of *G. villosa*, one of true *G. Saponaria* L. The other two specimens (our PLATE 1078, FIGS. 1 and 2) are the new element, *G. Catesbaei*, the larger specimen (FIG. 1) so marked by the late James Britten (apparently). Besides them (PLATE 1079) I am showing summits of two modern specimens from eastern Virginia. These are of the plant described from "Pine-barren swamps near the coast, Georgia and Florida", as *G. Elliottii* Chapm., var. *parvifolia* Chapm. Fl. So. U. S. 356 (1860), specimens before me, and which has been variously known as *G. Elliottii* Chapm., *G. parvifolia* (Chapm.) Britton and *Dasystephana parvifolia* (Chapm.) Small. Since some have doubted the identity of *G. Catesbaei* I am showing the type-material.

Although Walter did not cite Catesby's plate, his intent in giving the name *G. Catesbaei* is pretty obvious. As M. A. Curtis wrote in Bost. Journ. Nat. Hist. i. 128 (1835): "*Gentiana Catesbaei*. This species is readily distinguished from G. saponària, by the long linear segments of the calyx and its open corolla. It is finely delineated in Bigelow's Medical Botany. Tab. 70. of Catesby's Carolina, represents it". Both Bigelow's plate of *G. Catesbaei*, received from Charleston, South Carolina, and Catesby's are indeed very fine; and Bigelow pointed out that it is not *G. Saponaria* for "It differs widely, however, from that species in the size of its leaves, the length of its calyx, the open mouth of its corolla and shape of its segments." Catesby, like Bigelow, showing the open summit of the corolla, said "blue flowers; which, before they open, are in form of a Rolling-pin; but, when blown, are in shape of a Cup, with the verge divided into five sections". There should be no question about the identity of *G. Catesbaei*.

BARTONIA VERNA (Michx.) Muhl. In RHODORA, xlviii. 327 (1946) I explained my reasons for believing that the basis of the record of this vernal species from Virginia was a confusion made by Pursh in 1814. If the species is later found in the state it will presumably be as a considerable northern extension of range.

PHACELIA MACULATA Wood, Am. Bot. Fl. 255 (1873). *P. fallax* Fernald in RHODORA, xlvi. 51, t. 814 (1944).

Dr. Lincoln Constance calls my attention to Wood's species from Stone Mountain (type-region of *Phacelia fallax*), Wood's species very generally overlooked by American botanists and somewhat obscured by the entry in Index Kewensis "Quid?".

SCUTELLARIA INTEGRIFOLIA L., var. HISPIDA Benth. To the stations in Norfolk and Gloucester Counties cited by Epling in Univ. Calif. Publ. xx. 93 (1942) add one in NANSEMOND COUNTY: sphagnous and peaty bog by Norfolk and Western Railway, about ½ mile west of Kilby, *Fernald & Moore*, no. 15,149. See p. 94.

*S. INTEGRIFOLIA, var. MULTIGLANDULOSA Kearney (*S. multiglandulosa* (Kearney) Small). Range extended north from Georgia. NANSEMOND COUNTY: sphagnous and peaty bog (Magnolia swamp) by Norfolk and Western Railway, 1–1½ miles west of Kilby, *Fernald, Long & Clement*, no. 15,345. SOUTHAMPTON COUNTY: upper border of sandy and peaty shore of Darden's Pond, north of Courtland, *Fernald, Long & Clement*, no. 15,346.

Close matches for specimens identified by Epling as an "unusually stable" species, *Scutellaria multiglandulosa*, although it is difficult to believe that the "stability" would hold over a considerable area and that *S. multiglandulosa* is more than a somewhat minor variation of *S. integrifolia*, perhaps extending still farther north. Epling, l. c. 94, cites 18 collections of var. *multiglandulosa* (his *S. multiglandulosa*). Under 4 citations he adds: "occurs here with *S. integrifolia* subsp. *hispida*" or phrases of the same import. In Nansemond County the two are in bogs toward a mile apart! See pp. 99 and 101.

*LYCOPUS EUROPAEUS L., var. MOLLIS (Kern.) Briq. Numerous stations in southeastern Virginia. NORFOLK COUNTY: old collection from Norfolk, coll. *Rugel?*; between Princess Anne and Berkely, *Heller*, no. 1072. NANSEMOND COUNTY: border of fresh to brackish marsh, near Western Branch, south of Reid's Ferry, *Fernald & Long*, no. 13,438. ISLE OF WIGHT COUNTY: along path, Burwell's Bay, James River, below Rushmere (Fergusson's Wharf), *F. & L.*, no. 12,791. SURRY COUNTY: springy swale by Cobham Bay, James River, northwest of Chippokes, *F. & L.*, no. 12,790; roadside by sandy thicket, Sunken Meadow Beach, *F. & L.*, no. 6865.

Typical *Lycopus europaeus* L., recorded from Virginia but not seen from there by me, has the leaves broadly lanceolate to nar-

rowly ovate, acuminate, the lower and median primary ones deeply pinnatifid or incised, with the longest teeth or lobes 1–4 cm. long, the upper surface strigose, the lower surface but slightly pubescent to glabrescent. It is occasional in waste near Boston and is represented by *House*, nos. 19,639 and 20,772 from Monroe County, New York. Most eastern American specimens belong to var. *mollis*, which has smaller oval, obtuse to subacute leaves with short and blunt teeth and villous or soft-pilose beneath.

PHYSALIS PUBESCENS L. Add another station in NANSEMOND COUNTY: wet peaty and sandy shore of Exchange Pond, southwest of Everett's Bridge, *Fernald, Long & Clement*, no. 15,348.

*P. HETEROPHYLLA Nees, var. **clavipes,** var. nov. (TAB. 1080 et TAB. 1081, FIG. 4 et 5), rhizoma sublignea 1 cm. crassa; caule basin versus subligneo ad 1.5 cm. crasso; internodiis pilosis glandulosisque, pilis confertis 0.5 mm. longis; foliis membranaceis translucentibus, venis venulisque conspicuis, subtus villoso-strigosis, margine divergenter acute dentato.— Southampton County, VIRGINIA: sandy woods near Darden's Pond, northeast of Courtland, September 16, 1946, *Fernald, Long & Clement*, no. 15,347 (TYPE in Herb. Gray.; ISOTYPE in Herb. Phil. Acad.). See p. 102.

In its thick, subligneous and heavy deeply buried horizontal rhizome, its strongly subligneous subterranean (often clubshaped) vertical base of the fruiting stem, in the very thin and conspicuously veiny leaves, very evidently translucent to transmitted light, var. *clavipes* stands out from the other three recognized varieties of *Physalis heterophylla*. Typical *P. heterophylla* (PLATE 1081, FIGS. 1–3), has the horizontal rhizome (FIG. 1) slender and cord-like and the buried vertical base of the stem relatively slender and not ligneous, the leaves less prominently toothed and, when illuminated from below (FIG. 3), appearing dense and opaque. The pubescence of the internodes is dense, with abundant glands and very short intermixed pilosity. Var. *ambigua* (Gray) Rydb. (PLATE 1082, FIGS. 1–3) has the slender rhizome and base of stem, but its internodes are spreading-villous with slender trichomes up to 2 or 3 mm. long and its leaves are thick as in typical *P. heterophylla* and (FIG. 3) nearly as opaque. Var. *nyctaginea* (Dunal) Rydb. (FIGS. 4–6) has the slender rhizome and base of stem and the pubescence of internodes as in var. *ambigua*, but the only slightly toothed or entire leaf is thin and membranaceous and subtranslucent but without

the very obvious veins and veinlets of var. *clavipes*. All the four varieties occur in southeastern Virginia. To clear the record, specimens from the southeastern counties are cited below.

P. HETEROPHYLLA Nees (typical). PRINCE GEORGE COUNTY: rich alluvial woods and thickets by James River, Upper Brandon, *Fernald & Long*, no. 9425. SUSSEX COUNTY: border of dry sandy woods, 4 miles south of Stony Creek, *Fernald, Griscom & Long*, no. 6684, in somewhat thickened and subligneous base and in toothing of leaves transitional to var. *clavipes*.

P. HETEROPHYLLA, var. AMBIGUA (Gray) Rydb. ISLE OF WIGHT COUNTY: dry sandy woods about 1 mile north of Pons, *Fernald & Long*, no. 13,440; sand-beach along James River, Ragged Island, northeast of Carrollton, *Fernald & Long*, no. 12,795.

*P. HETEROPHYLLA, var. NYCTAGINEA (Dunal) Rydb. PRINCE GEORGE COUNTY: rich alluvial thicket back of sand-beach of James River, Jordan Point, *Fernald & Long*, no. 9427. SURRY COUNTY: rich alluvial woods and thickets back of sand-beach of James River, Eastover, *F. & L.*, no. 8840. SOUTHAMPTON COUNTY: dry sandy old clearing near Nottoway River, north of Smith's Ferry, *Fernald & Long*, no. 8841. GREENSVILLE COUNTY: open thickets, clearings, and borders of woods southeast of Emporia, *F. & L.*, no. 9428. Several collections from western counties.

PENSTEMON CANESCENS Britton. Range extended from the outer Piedmont well out into the Coastal Plain. HENRICO COUNTY: rich wooded slopes by James River, west of Varina, *Fernald & Long*, no. 13,133. PRINCE GEORGE COUNTY: dry wooded slopes of gullies near Powell's Creek, Garysville, *F. & L.*, no. 8456. SUSSEX COUNTY: dry sandy hickory and oak woods, Burt, *F. & L.*, no. 6385 (distrib. as *P. australis* Small). Identifications confirmed by Dr. Pennell.

Penstemon canescens adds another to the long list of primarily montane species with extensions out to the Coastal Plain, for Pennell, Scroph. E. Temp. N. Am. 221, and map 48, p. 219 (1935) found it to be a plant of "the Appalachian Mountains, both Eastern and Western . . .; eastward descending along rivers into the Piedmont, . . . on the James River reaching nearly to the Fall Line." At Varina it is associated with many inland or upland plants: *Carex conjuncta* Boott, *C. tenera* Dewey, *C. normalis* Mackenz., *Xanthorhiza simplicissima* Marsh., *Corydalis flavula* DC., *Scutellaria elliptica* Muhl., var. *hirsuta* (Short) Fern. (first station east of Blue Ridge), etc. Along Powell's

Creek it is associated with many prevailingly inland species: *Carex Frankii* Kunth, *Stellaria pubera* Michx., *Ranunculus micranthus* Nutt., *Sedum ternatum* Michx., *Phaseolus polystachios* (L.) BSP., *Ruellia strepens* L. and *Chrysogonum virginianum* L. The patch of hickory and oak woods near Burt is, as pointed out in RHODORA, xxxix. 342 (1937), a bit of upland forest on the Coastal Plain, with such inland species as *Festuca paradoxa* Desv., *Hexalectris spicata* (Walt.) Barnh., *Clematis ochroleuca* Ait., *Lathyrus venosus* Muhl., *Scrophularia marilandica* L. and *Houstonia tenuifolia* Nutt. *Penstemon canescens*, pushing out to the Coastal Plain, stays with its inland associates.

CHELONE OBLIQUA L. To the few recorded stations add another in NANSEMOND COUNTY: along rill in rich sandy and loamy oak and hickory woods just east of Suffolk, *Fernald, Long & Clement*, no. 15,350. See p. 96.

*GALIUM TINCTORIUM L., VAR. FLORIDANUM Wiegand in Bull. Torr. Bot. Cl. xxiv. 397 (1897). Range extended north from Florida. PRINCESS ANNE COUNTY: border of fresh pond back of the dunes, Chesapeake Beach, *Fernald, Long & Clement*, no. 15,358; wet sandy soil, Cape Henry, *L. F. & Fannie R. Randolph*, no. 332, as *G. Claytoni;* marshes bordering ponds, Dam Neck, *Fernald & Long*, no. 4206, as *G. Claytoni*. SOUTHAMPTON COUNTY: alluvial woods, bottomland of Mill Creek, Hart's Bridge, *F. & L.*, no. 8481, as *G. Claytoni*. See p. 100.

Wiegand, in his early revision of the group, treated *Galium tinctorium* as a heteromorphic species, his *G. tinctorium* proper being the plant we now know as *G. obtusum* Bigelow; his *G. tinctorium*, var. *filifolium* being *G. obtusum*, var. *filifolium* (Wieg.) Fernald; and his *G. tinctorium*, var. *labradoricum* being the wholly different *G. labradoricum* (Wieg.) Wieg. Wiegand treated as *G. Claytoni* Michx. a very weak plant with the leaves scabrous- or bristly-margined, the sprawling stems with prostrate, matted basal offshoots and 3 (sometimes 4)-lobed corollas at most 1.5 mm. broad. This plant, as shown by me in RHODORA, xxxvii. 443–445, plate 403, figs. 1 and 2 (1935), is really the true *G. tinctorium* of Linnaeus, while *G. tinctorium* sensu Wiegand is *G. obtusum* Bigelow, Fl. Bost. ed. 2: 54 (1824). Although *G. tinctorium* sensu Wiegand was not the true *G. tinctorium* of Linnaeus, and although *G. tinctorium*, var. *labradoricum* Wiegand and *G. tinctorium*, var. *filifolium* Wiegand are not conspecific with the Linnaean *G. tinctorium* (*G. Claytoni* Michx.), it so hap-

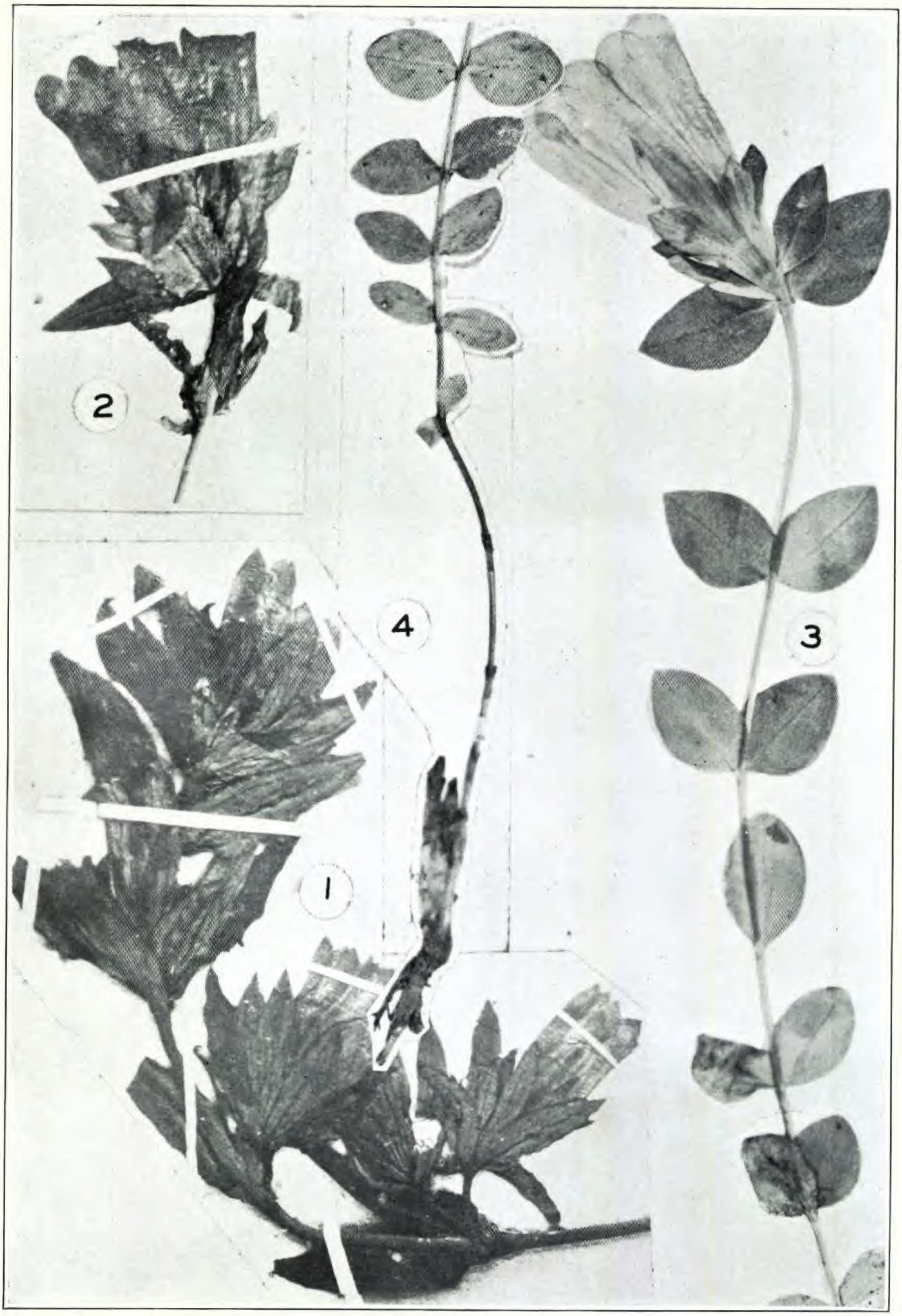


Photo. B. G. Schubert

GENTIANA CATESBAEI: FIGS 1 and 2, Walter's TYPE, after photo. from Dr. *J. Ramsbottom*

Var. NUMMULARIAEFOLIA: FIGS. 3 and 4, TYPE, × 1

Photo. B. G. Schubert

GENTIANA CATESBAEI: FIGS. 1 and 2, inflorescences, × 1, of modern specimens

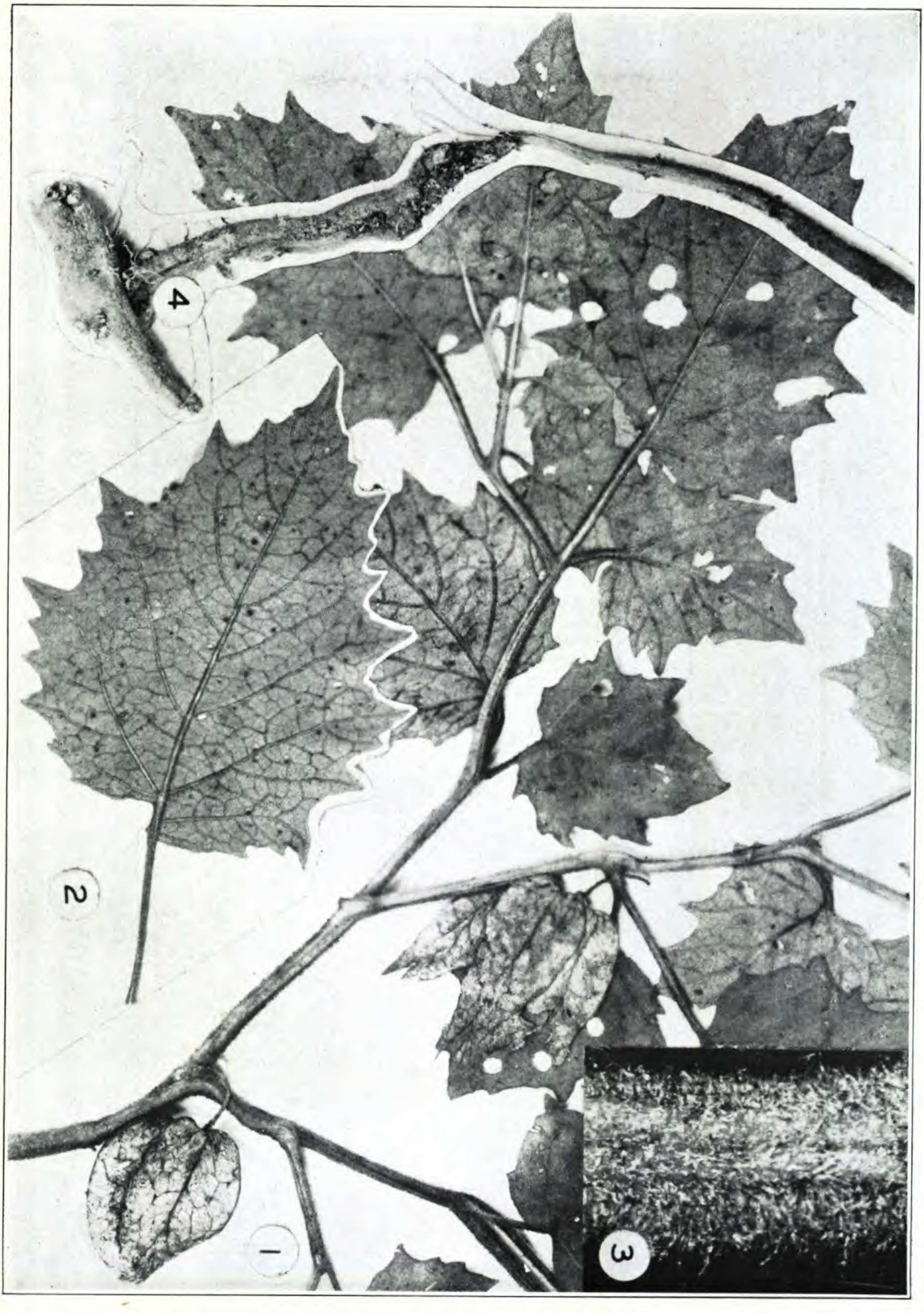


Photo. B. G. Schubert

PHYSALIS HETEROPHYLLA, var. CLAVIPES; all figs. from TYPE: FIG. 1, portion of fruiting plant, × 1; FIG. 2, a large leaf, × 1; FIG. 3, pubescence of stem, × 10; FIG. 4, a base, with portion of horizontal subterranean rhizome, × 1

Photo. B. G. Schubert

PHYSALIS HETEROPHYLLA: FIG. 1, base of plant and leaf at upper right, × 1; FIG. 2, pubescence of stem, × 10; FIG. 3, leaf, × 1, illuminated from below

Var. CLAVIPES, both figs. from type: FIG. 4, leaf, × 1, illuminated from below; FIG. 5, base of large plant, × 1

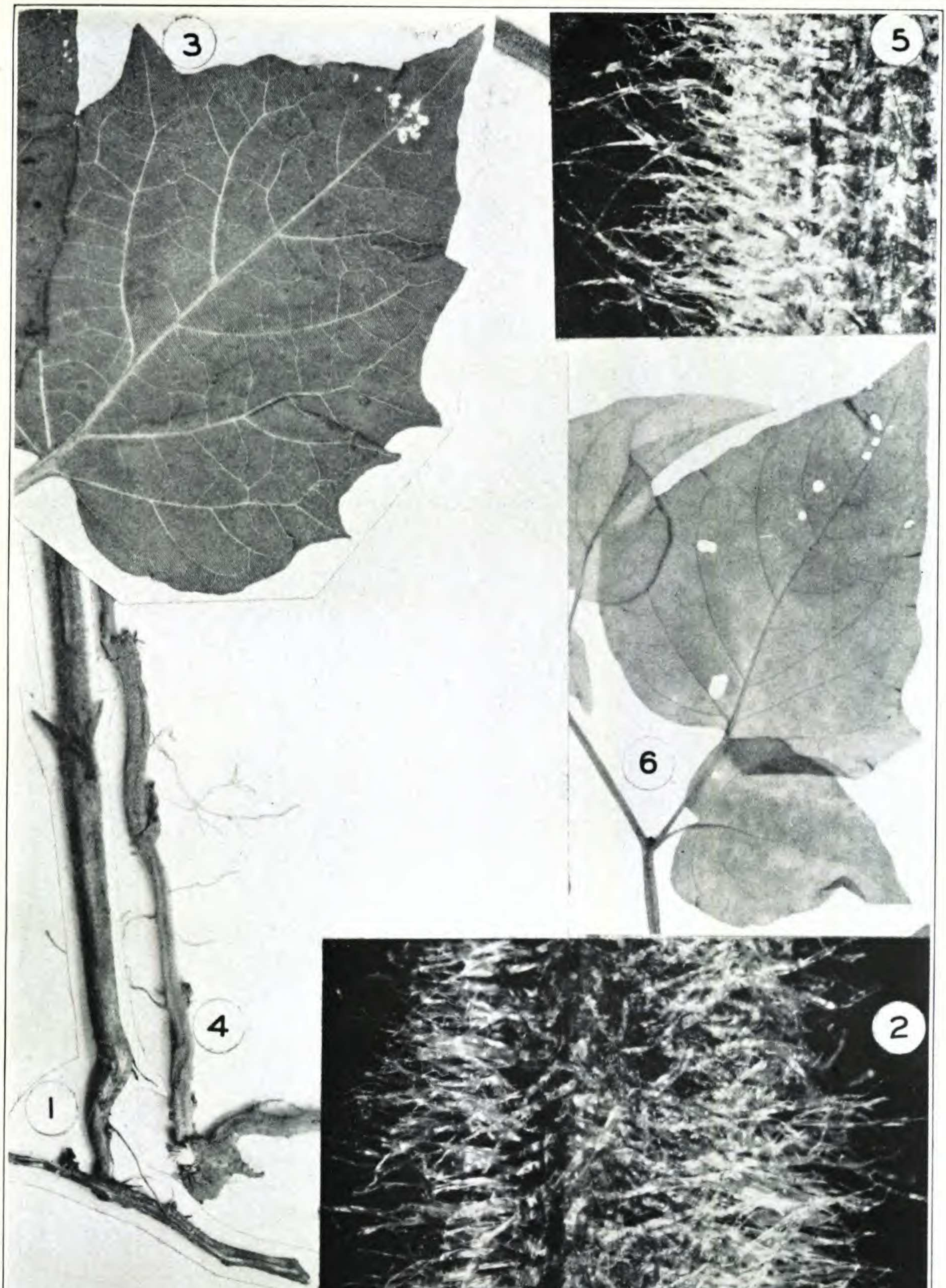


Photo. B. G. Schubert

PHYSALIS HETEROPHYLLA, var. AMBIGUA: FIG. 1, base, × 1; FIG. 2, pubescence of stem, × 10; FIG. 3, leaf, × 1, illuminated from below

Var. NYCTAGINEA: FIG. 4, base, × 1; FIG. 5, pubescence of stem, × 10; FIG. 6, leaves, × 1, illuminated from below

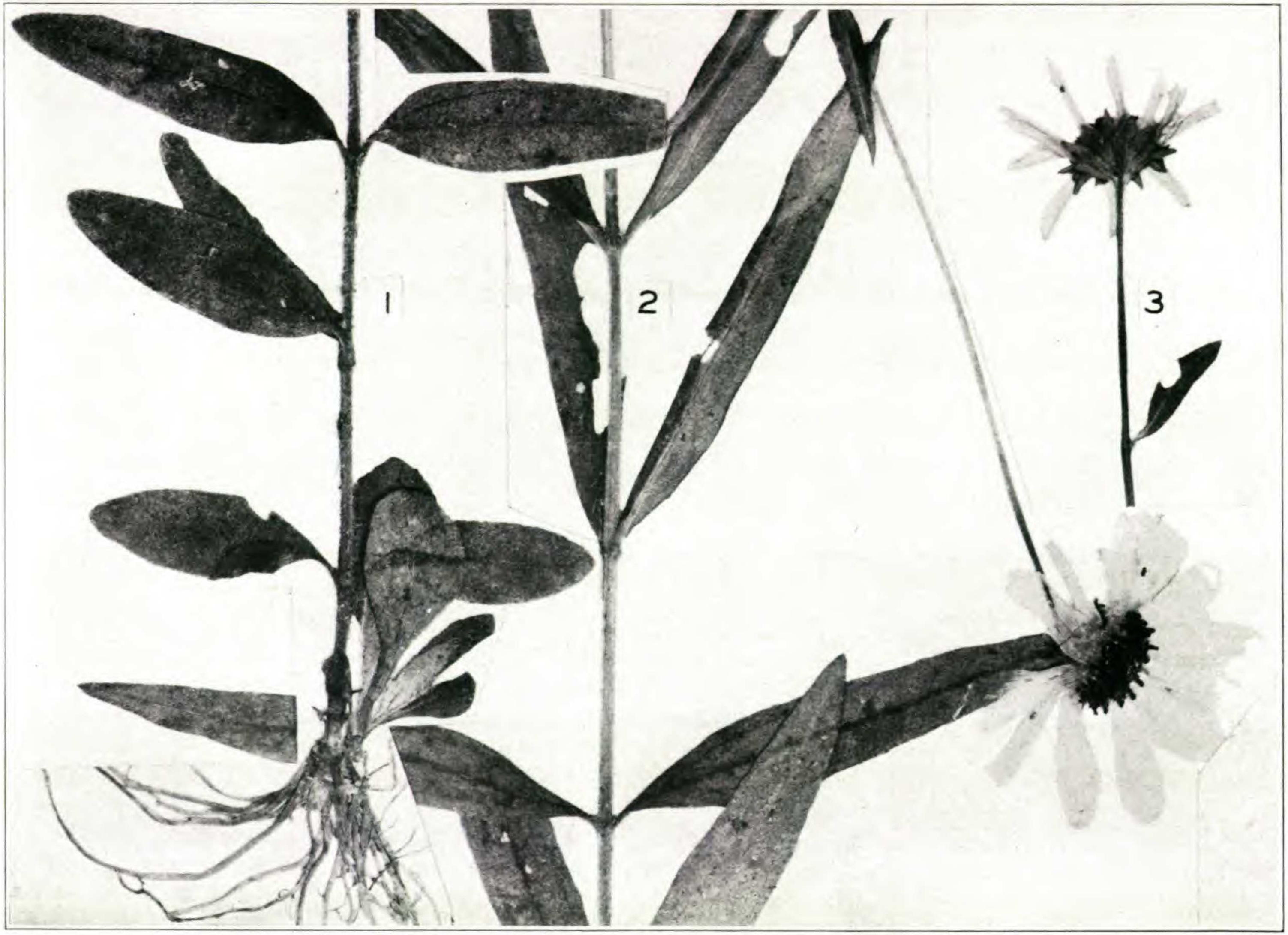
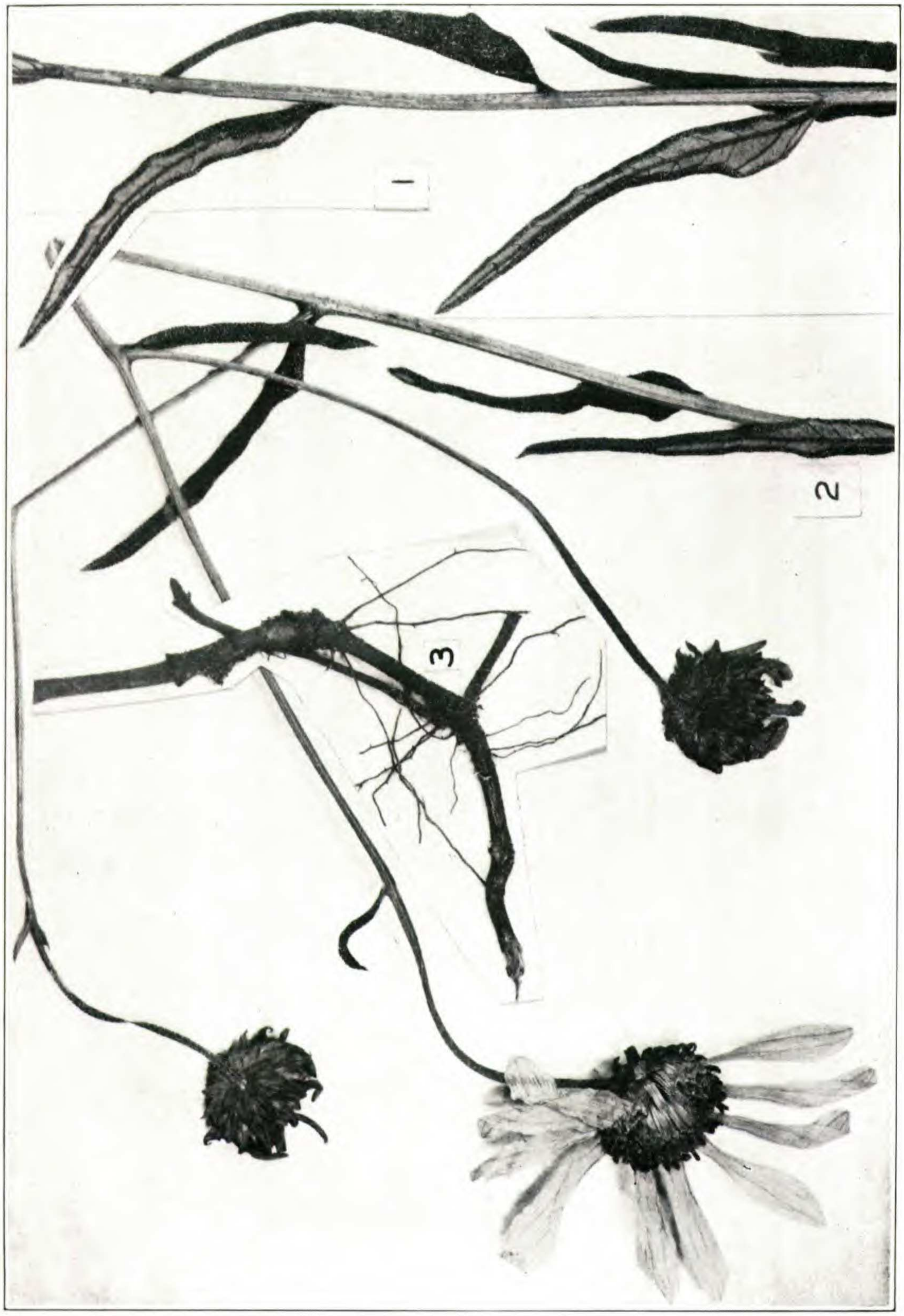


Photo. I. D. Clement

HELIANTHUS ANGUSTIFOLIUS, var. PLANIFOLIUS, portions of TYPE, × 1; FIG. 1, base of plant; FIG. 2, median leaves; FIG. 3, involucre

Photo. I. D. Clement

HELIANTHUS ANGUSTIFOLIUS: FIG. 1, TYPE, × ca. ¼; FIG. 2, perennating base of plant, × 1



HELIANTHUS FLORIDANUS: FIGS. 1 and 2, portions of TYPE, × 1; FIG. 3, stoloniferous base, × 1

Photo. I. D. Clement

pens that *G. tinctorium*, var. *floridanum* is a southeastern large-fruited extreme of the Linnaean species!

Whereas true *Galium tinctorium* has the mature pairs of fruits relatively small (2–3 mm. across), var. *floridanum* has them larger, the pairs measuring 3.5–5 mm. across. The longest peduncles of true *G. tinctorium* range from 10–17 mm. long but the longest in var. *floridanum* are up to 23 mm. long, while the longest pedicels of typical *G. tinctorium* are 4–8 mm. long, those of var. *floridanum* ranging up to 13 mm. long. Furthermore, var. *floridanum* often bears long unforking and recurving very slender peduncles suggestive of those of the more northern *G. trifidum* L. Although var. *floridanum* was described only from Florida, it extends along the Coastal Plain of South and North Carolina into southeastern Virginia. The record in RHODORA, xxxvii. 178 (1935) was based on the very large-fruited and smooth *G. obtusum* Bigel., var. *filifolium* (Wiegand) Fern.

DIODIA TERES Walt., var. HYSTRICINA Fern. & Griscom. Add another station in PRINCESS ANNE COUNTY: hollows in sand dunes, Chesapeake Beach, *Fernald, Long & Clement*, nos. 15,354 (simple, crowded, upright plants) and 15,355 (depressed, freely branching). See p. 100.

*CEPHALANTHUS OCCIDENTALIS L., forma **lanceolatus,** f. nov., foliis oppositis lanceolatis vel lanceolato-oblongis utrinque attenuatis submembranaceis subtus pallidis, laminis 4–9 cm. longis 1–3 cm. latis.—Southampton County, VIRGINIA: wet thicket bordering Darden's Pond, north of Courtland, September 16, 1946, *Fernald, Long & Clement*, no. 15,357 (TYPE in Herb. Gray.; isotype in Herb. Phil. Acad.). See p. 101.

Cephalanthus occidentalis in its typical form has the leaf oblong-ovate and abruptly short-acuminate. It varies from small-leaved extremes at the northern border of its range, with blades only 4 cm. long and 2.3 cm. broad, to the largest-leaved shrubs or small trees of the southeastern states, with blades up to 2.5 dm. long and 1.5 dm. broad, the leaves either opposite or in 3's. Forma *lanceolatus*, with narrowly lanceolate leaves attenuate to both ends grows at its type-station with the ordinary broad-leaved shrub and strongly contrasts with it.

Although several authors treat the Mexican *Cephalanthus salicifolius* Humb. & Bonpl., as a narrowly lance- or linear-leaved variety of *C. occidentalis*, *C. occidentalis*, var. *salicifolius* (Humb. & Bonpl.) Gray, Syn. Fl. i^2. 29 (1878), they overlook the very

narrow (essentially linear) and elongate outline, the coriaceous texture and the obscure lateral nerves of the latter (and other characters), *C. occidentalis* and forma *lanceolatus* having thinner leaves with the lateral nerves quite evident.

It is possible that forma *lanceolatus* is the shrub cultivated in Europe as the ill-begotten *C. angustifolius* Hort. ex André in Rev. Hort. 1889, 280, 281, fig. 70 (1889) and Dippel, Handb. Laubholzk. i. 164 (1889), this in both cases treated as *C. occidentalis*, var. *angustifolius* André l. c., based on the horticultural binomial *C. angustifolius* Hort. ex André (1889), not Lour. Fl. Cochinch. i. 67 (1790). Since, according to Haviland, *Revision of the Naucleeae*, in Journ. Linn. Soc. xxxiii. 39 (1897), *C. angustifolius* Lour. of Cochinchina has the coriaceous very short-petioled leaves oblong-linear (in *C. occidentalis* oblong-ovate to -lanceolate and membranaceous), the peduncles ebracteate (in *C. occidentalis* with small bracts), the calyx-lobes linear (in *C. occidentalis* ovate), etc., it is evident that the cultivated shrub in European gardens has nothing to do with *C. angustifolius* Lour.; neither does the narrow-leaved form of *C. occidentalis*. I am, therefore, not taking up the later and rather vaguely founded *C. occidentalis*, var. *angustifolius* André.

VIBURNUM NUDUM L., var. ANGUSTIFOLIUM Torr. & Gray. New stations. NANSEMOND COUNTY: wet *Sphagnum* of pine-barrens east of Cherry Grove, south of South Quay, *Fernald & Moore*, no. 15,154, flowering shrubs only 4–6 dm. high. SUSSEX COUNTY: swampy depression in sandy pinelands 3 to 4 miles northwest of Waverly, *Fernald, Long & Clement*, no. 15,360. See p. 93.

THE GEOGRAPHIC VARIETIES OF LOBELIA PUBERULA.—In his Flora Boreali-Americana, ii. 152 (1803) Michaux described *Lobelia puberula:*

> L. erecta, simplicissima, pubescens: foliis oblongo-ovalibus, obtusis, repando-serrulatis: spica non pedunculata; floribus paucis, alternis, subsessilibus: calycibus ciliatis. *HAB.* in Carolina.

This was regularly taken to be the definitely pubescent plant of coastwise distribution in the Atlantic states, with the calyx-tube densely whitish-hirsute to -villous. When he studied Michaux's Herbarium in Paris in 1851 Asa Gray made a memorandum indicating that the specimen is what he knew and in his

Manual (1848) had described as *L. puberula: "minutely downy-pubescent; leaves ovate or oblong, obtuse,* . . . leafy bracts ovate, acute, serrate as long as the flower, *lobes of the calyx scarcely shorter than the corolla, the auricles as long as the hairy tube*". Again, when I studied the Michaux Herbarium in 1903, I similarly recorded that the type of *L. puberula* was the coastwise plant we know by that name. That is as it should be, for this pubescent plant so clearly matches Michaux's description and his plant came from Carolina. Michaux generally treated the two Carolinas as one but occasionally North Carolina appeared as Carolina superior, South Carolina as Carolina inferior; but he made a sharp distinction between the Coastal Plain and outer Piedmont region and the high mountains, plants of the latter area growing "in montibus Carolinae", "a Pensylvania ad Carolinam, per montium tractus", "a Canada ad Carolinam montosam". His pubescent *Lobelia puberula* simply from "Carolina" was obviously from east of the mountains, whence there are in the Gray Herbarium 8 sheets (4 from 4 counties in eastern North Carolina, 4 from 3 counties in eastern South Carolina, as well as specimens from 10 counties on the Coastal Plain of Virginia).

In Rhodora, xxxviii. 292 (1936) McVaugh stated that "There is no material of this species in the Michaux Herbarium in Paris". In view of the fact that Asa Gray found and studied it in 1851 and that I did likewise in 1903, it was evident that Michaux's material had existed. Professor Jacques Rousseau, expecting to visit Paris in the autumn of 1946, most kindly offered to look into the matter. Forced to abandon his plan, he communicated with M. J. Léandri of the Muséum d'Histoire Naturelle, who writes that the type of *Lobelia puberula* had merely been misplaced and that "As to the calix, it is similar to the sample of 'B' which Prof. Fernald has sent."

In his study of the genus McVaugh broke *Lobelia puberula* into 4 "pronounced geographic forms which may or may not be worthy of varietal names" (Rhodora, xxxviii. 293 (1936)), saying (p. 292) "In the absence of type material, and in view of the variability of the forms [on the next page they were "pronounced geographic forms"], it seems impossible at present to determine the exact identity of *L. puberula* of Michaux". Under other species with pronounced geographic segregation, as in *L.*

spicata, he definitely called such plants varieties. In view of his "Form a" concentrating itself on the Appalachian Upland and Cumberland Plateau, his "Form b", "on the southeastern Coastal Plain and adjacent Piedmont, New Jersey and Pennsylvania south to Georgia", this the plant described by Michaux from Carolina and checked by Asa Gray in 1851, by myself in 1903, "Form c" "Alabama to Louisiana, especially on the Coastal Plain", and "Form d", Missouri and Arkansas southward to eastern Oklahoma and Texas, and eastward to Alabama and southern Mississippi"—in view of these geographic segregations (much greater than in the admitted varieties of *L. spicata*), it would seem that the 4 extreme and largely isolated trends in *L. puberula* are quite as clear varieties as are those of *L. spicata*. The typical *L. puberula* being the eastern pubescent coastwise plant so adequately described by Elliott with "Tube of the *calyx* short, villous, the segments lanceolate, ciliate, three times as long as the tube" and by McVaugh as his form b with "a densely long-hirsute calyx", etc., we may designate the other three varieties.

*Var. **simulans,** var. nov., a var. typica recedit caule minute puberulo, foliis patentibus, bracteis lanceolatis vel linearibus, tubo calycis glabrescenti vel sparse pubescenti lobis linearilanceolatis 1.5–2 mm. latis. Form a of McVaugh in RHODORA, xxxviii. 293, fig. 12 (1936)—West Virginia to Illinois, south to Florida, Alabama, Mississippi and Louisiana, largely on the upland. TYPE: Wytheville, Wythe County, Virginia, Sept. 16, 1878, *Howard Shriver* (in Herb. Gray.). The asterisk used since the variety is here named for the first time.

Var. **obtusifolia** (A. DC.), comb. nov. *L. glandulosa*, γ. *obtusifolia* A. DC. in DC. Prodr. vii. 378 (1839). *L. puberula*, β. *glabella* Hook. Bot. Mag. lxi. t. 3292 (1834), not Ell. Sk. i. 267 (1817). *L. puberula*, var. *laeviuscula* Mohr in Contrib. U. S. Nat. Herb. vi. 750 (1901). Form c of McVaugh, l. c. 296 (1936) —Alabama to Louisiana.

I get no difference between the type (in Gray Herb.) of Alphonse De Candolle's *Lobelia glandulosa* γ. *obtusifolia* and the original of *L. puberula* β. *glabella* Hook., nor from the Drummond material from Louisiana from seed of which Hooker's plant was grown. Hooker's varietal name has to be discarded under *L. puberula* on account of *L. puberula*, var. *glabella* of Elliott.

The latter, from Chatham County, Georgia, was defined as follows: "with a stem 12–18 inches high, very smooth; leaves

linear lanceolate, obscurely denticulate; margins of the calyx slightly reflexed. Seems to be an intermediate plant between this species [*L. puberula*] and L. glandulosa". Its exact identity may never be settled, for the specimen is apparently lost. At least, in studying all the types preserved in Elliott's herbarium at the Charleston Museum, Weatherby in RHODORA, xliv. 256 (1942) found nothing to show for it. In his treatment of *L. puberula* McVaugh (p. 292) says of Elliott's variety "probably *L. elongata Small*"; and again (p. 284) "was probably *L. elongata* Small, as was *L. puberula* var. *glabella*, Elliott", but in his discussion of *L. elongata* itself he made no mention of the supposed synonym. Whatever Elliott had, his name invalidates the use of the same appellation for another plant. His diagnosis is to me quite as close to McVaugh's description of *L. glandulosa* Walt. as to that of *L. elongata*. Incidentally Small's *L. elongata* was originally given a very inclusive description but the TYPE was from Northwest in southeastern Norfolk County, Virginia, Small describing the "sepals elongated . . . , entire, as long as the corolla or shorter", while for *L. glandulosa* Small correctly described the "corolla . . . tube much longer than the calyx". The plant at Northwest, type-locality of *L. elongata*, is confined to fresh to brackish tidal reed-marshes along the river and it also abounds on the adjacent fresh to brackish tidal marshes (there as at Northwest, along with *Scirpus Olneyi* and other halophytes or near-halophytes) of North Landing River. Messrs. Griscom, Long or Fogg and I have collected it either at the type-locality or nearby and Mackenzie also got it. I have before me 8 beautiful sheets of it, all quite consistent (except that in one the inflorescence is paniculate-branched). The brittle stem is 0.45–1.5 m. high and all but the most crowded and etiolated ones 4–6 mm thick at base. The leaves are linear- to oblong-lanceolate or oblanceolate, entire or dentate, submembranaceous, the median ones 0.5–2.5 cm. wide; the median bracts of the raceme are linear-lanceolate and 1–2.5 cm. long; the flowering calyx is 1–1.7 cm. long, its non-glangular segments about two thirds as long as the corolla-tube; seeds 0.8–1 mm. long, reticulate-pitted, with cells 3–10 times as long as broad. As already noted, *L. elongata* is a plant of brackish to fresh tidal reed-marsh. Frequently and needlessly confused with *L. elongata* are plants of *L. glandulosa*

Walt., var. with glabrous, instead of densely chaffy-hirsute, calyx-tube, the plant more slender than *L. elongata*, its subcoriaceous leaves linear to linear-lanceolate and mostly 2–8 (rarely –15) mm. broad, the principal bracts of the raceme 0.5–1.8 cm. long, the calyx 6–15 mm. long, its segments usually much shorter than the corolla-tube; seeds 0.5–0.6 mm. long, its pits mostly shorter and more uniform than in *L. elongata*. *L. glandulosa* is a plant of fresh-savannas, pinelands and pine-barrens.

The variety of *Lobelia glandulosa* with glabrous calyx-tube was distributed by M. A. Curtis as *L. glandulosa*, var. *glabra*, he perhaps thinking it the *L. glandulosa* β. *glabra* A. DC. l. c. 378 (1839), from South Carolina, but, unfortunately, Alphonse DeCandolle described the "Foliae ovato-acuta", which will not do for *L. glandulosa*. The variety under discussion may be called

L. GLANDULOSA Walt., var. **laevicalyx,** var. nov. a var. typica recedit tubo calycis glabro.—Florida to eastern North Carolina. TYPE in Herb. Gray.: swampy pineland at Middlesex, Nash County, North Carolina, October 9, 1938, *Godfrey & Kerr*, no. 6661 (distrib. as *L. elongata*).

Returning to the varieties of *Lobelia puberula*, the two remaining varieties here need little further comment. McVaugh's "Form d" is, as he states, var. *mineolana* E. Wimmer in Fedde, Repert. Spec. Nov. xxvi. 4 (1929).

EUPATORIUM RECURVANS Small. To the stations about the Great Dismal Swamp in Norfolk Co. add one in PRINCESS ANNE COUNTY: hollows in sand dunes, Chesapeake Beach, *Fernald, Long & Clement*, nos. 15,363 and 15,364, both nos. showing the fleshy and often 2- or 3-forked tuberous roots which characterize this southeastern species. See p. 101.

LIATRIS.—The monograph of *Liatris* by Dr. L. O. Gaiser, in RHODORA, xlviii, August to December (1946) contains records of several Virginian species and varieties. That the record may be quickly available I am noting these here.

L. SPICATA L. (var. TYPICA Gaiser). Recorded only from Fairfax, Montgomery and Giles Cos. See Gaiser, l. c. 180.

L. SPICATA, forma MONTANA (Gray) Gaiser, l. c. 216. Bath Co.

*L. SPICATA, var. RESINOSA (Nutt.) Gaiser, l. c. Virginian stations cited in Sussex and Dinwiddie Cos. To these add one in NANSEMOND COUNTY: sphagnous and peaty bog by the Norfolk and Western Railway, about ½ mile west of Kilby, *Fernald, Long & Clement*, no. 15,365. See p. 98.